

Object-Oriented Programming Language – Midterm
(Part I, **No Compiler**, open textbook and notes, 20 minutes, 試卷隨答案卷繳回)

10/17/2013

Name: _____

ID: _____

1. (20%) What is the type of `i` in the following code fragment?

(a)

```
struct Coord {  
    double x;  
    double y;  
};
```

```
Coord i;
```

(b)

```
int a = 6;  
int& r = a;  
auto i = r;
```

(c)

```
int a = 6;  
double b = 4.0;  
auto i = a + b;
```

(d)

```
vector<int> v;  
auto i = v.cbegin();
```

(e)

```
array<string,5> coll = { "hello", "world" };  
for (auto i=0; i<coll.size(); ++i) {  
    ...  
}
```

2. (6%) Consider a header file `Fraction.h` and a class definition `Fraction`
`Fraction.h`

```
#ifndef FRACTION_H  
#define FRACTION_H  
class Fraction  
{  
    public:  
        ...  
  
    private:  
        int denom, numer;  
};  
#endif
```

(a) Implement a default constructor directly in the class definition using **an initializer list**. We shall initialize `denom` with the value of 2 and `numer` with the value of 5.

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(b) Implement a default constructor in `Fraction.cpp` using **an initializer list**. We shall initialize `denom` with the value of 2 and `numer` with the value of 5.

3. (4%) What is wrong with the following code fragment? How might you correct it?

```
list<int> lst1;  
list<int>::iterator iter1 = lst1.begin(), iter2 = lst1.end();  
while (iter1 < iter2)  
{  
    /*do something */  
}
```